TX-SV434

Ref. No. 3542

ONKYO SERVICE MANUAL

QUARTZ SYNTHESIZED
TUNER AMPLIFIER
MODEL TX-SV434

Black model

BMD/BMDN	120V AC, 60Hz
BMP	230V AC, 50Hz
BMW	120V or 220V AC, 50/60Hz

ONKYO®
AUDIO COMPONENTS

SPECIFICATIONS

TX-SV434

AMPLIFIER SECTION

Power Output	
Stereo mode	
Front L/R channels:	60 watts per channel, min. RMS at 8 ohms, both channels driven from 20 Hz to 20 kHz with no more than 0.08% total harmonic distortion.
Continuous Power output:	2 × 65 watts at 8 ohms, 1 kHz (DIN)
Surround mode	
Front L/R and Center channels:	50 watts per channel, min. RMS at 8 ohms, with no more than 0.08% total harmonic distortion at 1 kHz
Rear channels (Rear only driven):	15 watts per channel, min. RMS at 8 ohms, with no more than 0.3% total harmonic distortion at 1 kHz
Total Harmonic Distortion:	0.08% at rated power (Front)
IM Distortion:	0.08% at rated power (Front)
Damping Factor:	60 at 8 ohms (Front)
Sensitivity and Impedance	
Phono:	2.5 mV/50 kohms
CD/Tape Play:	150 mV/50 kohms
Tape Rec:	150 mV/2.2 kohms
Mono out (Subwoofer):	1 V/2.2 kohms
Phono Overload:	120 mV RMS at 1 kHz, 0.5% T.H.D.
Frequency Response:	20 Hz to 30 kHz, ±1 dB
RIAA Deviation:	20 Hz to 20 kHz, ±0.8 dB
Tone Control	
Bass:	±10 dB at 100 Hz
Treble:	±10 dB at 10 kHz
Signal-to-Noise Ratio	
Phono:	80 dB (IHF A, 5 mV input)
CD/Tape:	100 dB (IHF A)

VIDEO SECTION

Signal sensitivity and impedance:	1 Vp-p, 75 ohms (VDP/VCR input, output)

TUNER SECTION

FM

Tuning Range:	87.5 — 108.0 MHz
Usable Sensitivity	
Mono:	11.2 dBf, 1.0 µV (75 ohms)
Stereo:	17.2 dBf, 2.0 µV (75 ohms)
50dB Quieting Sensitivity	
Mono:	18.2 dBf, 2.2 µV (75 ohms)
Stereo:	38.2 dBf, 22 µV (75 ohms)
Capture Ratio:	1.5 dB
Image Rejection Ratio	
U.S.A. & Canadian models:	40 dB
Other area models:	85 dB
IF Rejection Ratio:	90 dB
Signal-to-Noise Ratio	
Mono:	73 dB
Stereo:	67 dB
Alternate Channel Attenuation:	55 dB
Selectivity:	50 dB (DIN)
AM Suppression Ratio:	50 dB
Total Harmonic Distortion	
Mono:	0.15%
Stereo:	0.25%
Frequency Response:	30 Hz — 15 kHz, ±1.5 dB
Stereo Separation:	45 dB at 1 kHz 30 dB at 100 Hz — 10 kHz

AM

Tuning Range	
U.S.A. & Canadian models:	530—1,710 kHz (10 kHz steps)
European & Australian models:	522—1,611 kHz (9 kHz steps)
Worldwide models:	531—1,602 kHz (9 kHz steps), 530—1,710 kHz (10 kHz steps)
Usable Sensitivity:	30 µV
Image Rejection Ratio:	40 dB
IF Rejection Ratio:	40 dB
Signal-to-Noise Ratio:	40 dB
Total Harmonic Distortion:	0.7%

GENERAL

Power Supply	
U.S.A. & Canadian models:	AC 120 V, 60 Hz
European & Australian models:	AC 230 V, 50 Hz
Woldwide models:	AC 220 V and 120 V switchable, 50/60 Hz
Power Consumption	
U.S.A. & Canadian models:	2.8 A (325 W)
Other area models:	240 W
Dimensions (W × H × D):	455 × 150 × 322 mm 17-15/16″ × 5-7/8″ × 12-11/16″
Weight:	9.6 kg, 21.2 lbs.

REMOTE CONTROL RC-295S

Transmitter:	Infrared
Signal range:	Approx. 5 meters, 16 ft.
Power supply:	Two "AA" batteries (1.5 V × 2)
Dimensions (W × H × D):	65 × 18 × 194 mm 2-9/16″ × 11/16″ × 7-5/8″
Weight:	110 grams, 3.9 oz. (including batteries)

Specifications and features are subject to change without notice.

SERVICE PROCEDURES

1. Replacing the fuses

This symbol located near the fuse indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating refer to the marking adjacent to the symbol.

Ce symbole indique que le fusible utlise est a rapide. Pour une protection permanente, n'utiliser que des fusibles de meme type. Ce darnier est indique la qu le present symbol est appose.

CIRCUIT NO.	PART NO.	DESCRIPTION
F901	252164Y	5A-UL/T-237,Primary 〈D/W〉
F902	252076	3.15A-TSC,Primary 〈P/W〉
F903	252075	2.5A-SE-EAK,Primary 〈P〉
F921,F922	252156Y	1A-UL/T-237,Secondary<D>
	252070	1A-SE-EAK,Secondary<P/W>

NOTE : <D> : 120V model only
<P> : 230V model only
<W> : Worldwide model

2. To Initialize the unit

This device employs a microprocessor to perform various functions and operations. If interference generated by an external power supply, radio wave, or other electrical source results in accident which causes the specified operations and functions to operate abnormally.

To perform a result, please follow the procedure below.

1. **Press and hold down the CD button, then press the POWER button.**
2. **Take the power supply cord from the socket while "TEST-" is displayed.**
3. **After "clear" is displayed, the preset memory and each mode stored in the memory, such as surround, are initialized and will return to the factory settings.**

3. Safety-check out

(Only U.S.A. model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer. Connect the insulating-resistance tester between the plug of power supply cord and the screw on the back panel.

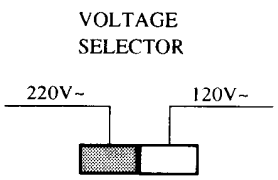
Specifications: 3.3 Mohm±10% at 500V.

4. Change of voltage

Worldwide models are equipment with a voltage selector to conform with local power supplies. This switch is located on the back panel.

Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on.

This switch is set to 220V at the factory. Voltage is changed by sliding the groove in the switch with the screwdriver to the right or left. Confirm that the switch has been moved all the way to the right or left before turning the power switch on.



5. Memory preservation

This unit does not require memory preservation batteries.

A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged

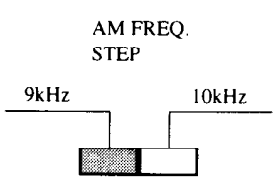
The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month the keep the back-up system operative.

The period of the time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorted when the unit is exposed to very high humidity or used in an area with an extremely humid climate.

6. Setting the tuning step frequency

Worldwide models are equipped with a step band selector switch. This switch is located on the back panel. This switch is set to 9 kHz at the factory, but may have to be reset to 10 kHz depending on the area where the unit is used.

	AM band step
Europe:	9 kHz
U.S.A.:	10 kHz

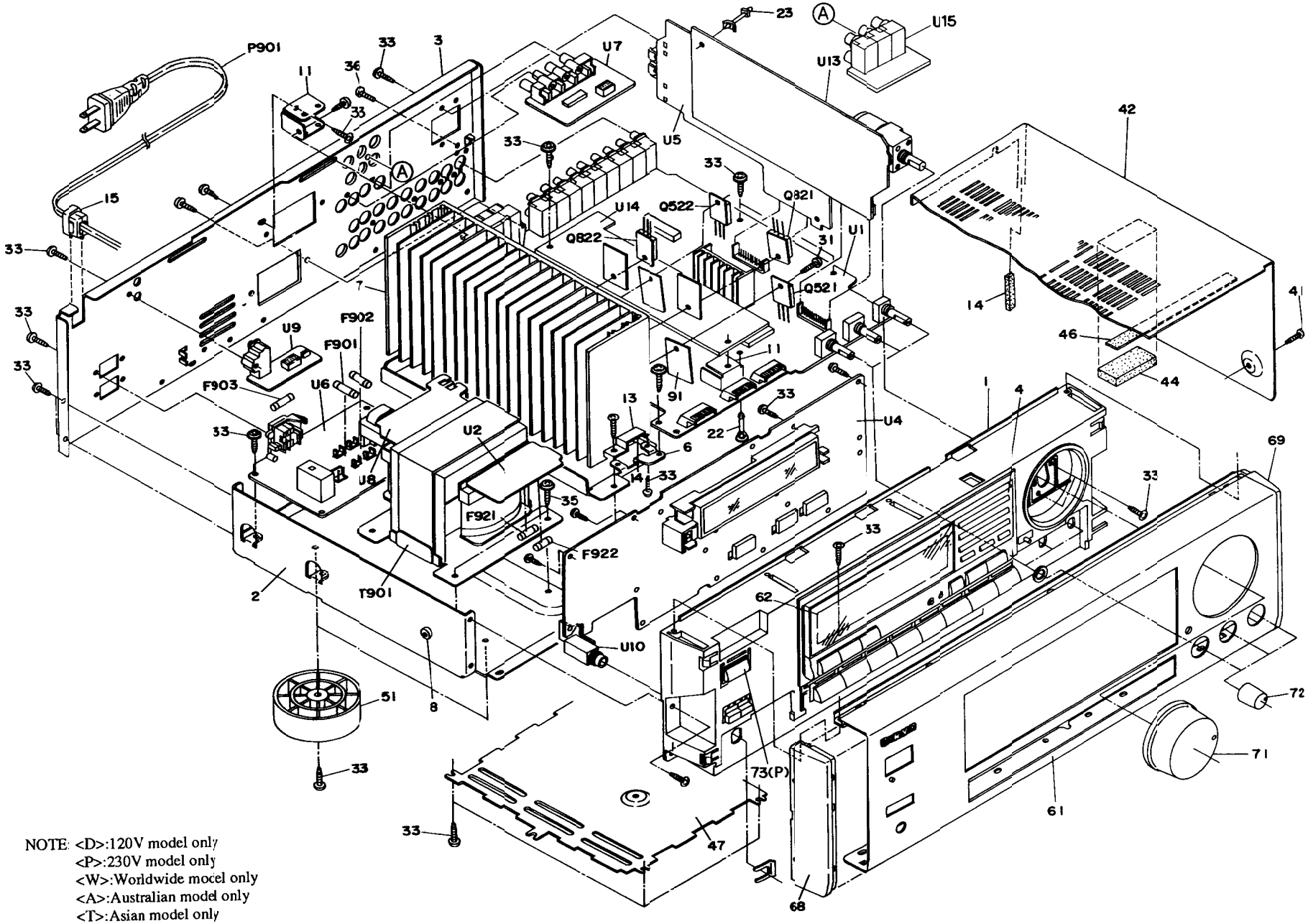


7. Changing the band step

With the exception of the worldwide models, a tuning step selector switch is not provided. When you change the band step, change the parts as shown below.

	To 10kHz	To 9kHz
R727	Remove	22kohm
R724	3.3kohm	Remove

EXPLODED VIEW



NOTE: <D>:120V model only
<P>:230V model only
<W>:Worldwide mocel only
<A>:Australian model only
<T>:Asian model only

PARTS LIST

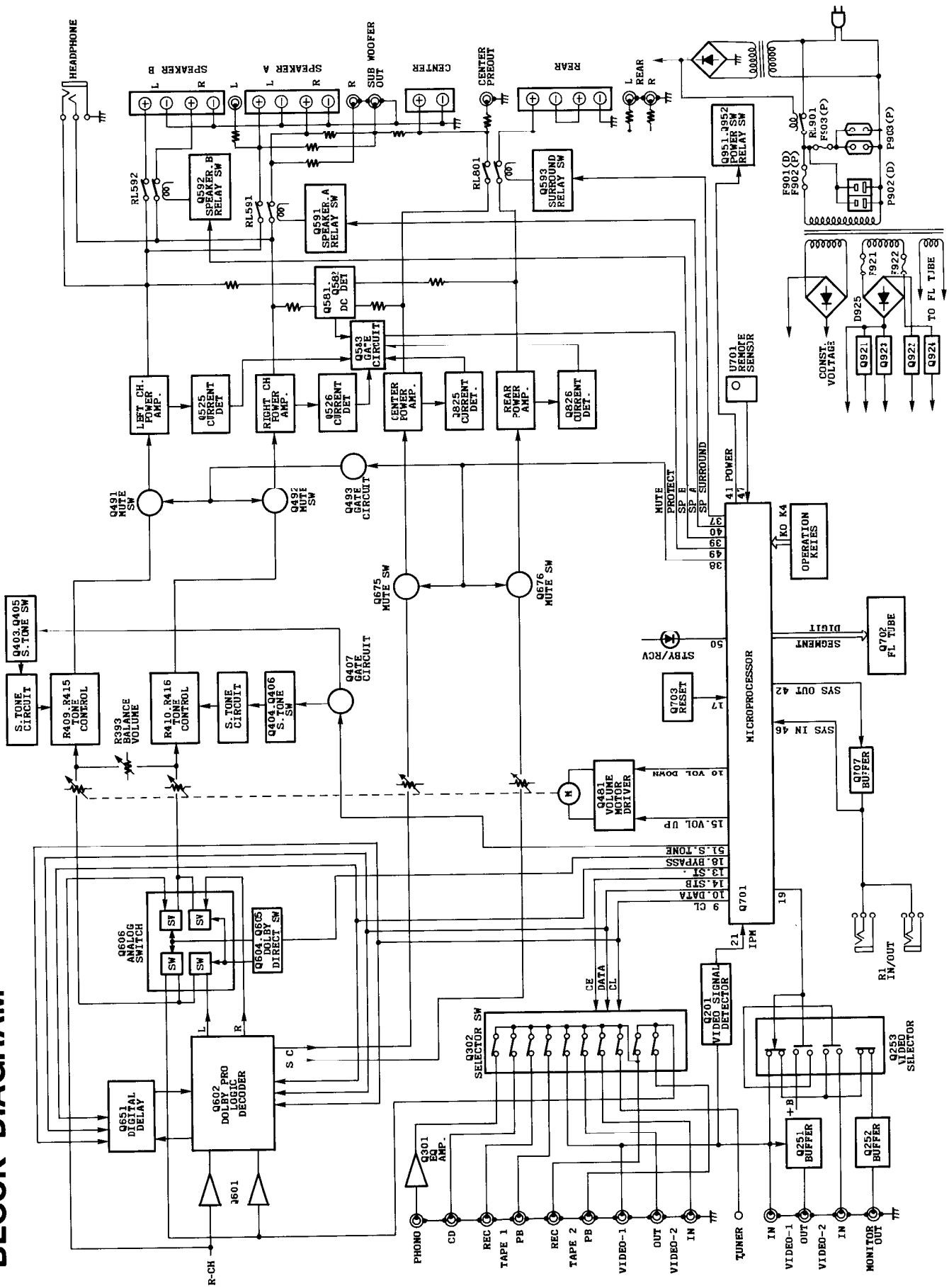
REF. NO.	PART NO.	DESCRIPTION
1	27110931Y	Front bracket
2	27100278CY	Chassis
3	27122184Y	Rear panel <D>
	27122185Y	Rear panel <P>
	27122186Y	Rear panel <W>
	27122249Y	Rear panel <A>
	27122254Y	Rear panel <T>
4	27215258Y	Decorative frame
6	27130727Y	Bracket H
7	27160330CY	Radiator
8	27270212	Spacer <P/W>
11	27141623Y	Retainer H
12	27141530A	Retainer
13	27141654AY	Retainer
14	28141311AY	Cushion
15	27300750	⚠ Cord bushing
22	27190524	KGLS-14RF, Holder
23	27190062	KGLS-12S, Holder
31	801433	3SMS8W.SW+14B(BC), Sems screw
33	838130088	3TTB+8B, Self-tapping screw
35	830440089	4TTC+8C(BC), Self-tapping screw
36	838230088	3TTB+8B(Ni), Self-tapping screw
41	838430088	3TTB+8B(BC), Self-tapping screw
42	28184476BY	Top cover
44	28140265	8×40×20,Cushion
45	28141306Y	6×5×30,Cushion
46	28140680	0.5×10×180,Cushion
47	27170302AY	Bottom board
51	27175300-2Y	Leg
61	1A682121YMDN	Front panel ass'y <D/W/A/T>
	1A682121YMP	Front panel ass'y <P>
61a	8910301	CS-3, CS ring
61b	28198778Y	Facet
61c	28135199Y	Badge
61d	27267924AY	Guide, power <P>
62	28191714Y	Clear plate
68	28125255-6Y	End cap L
69	28125256-6Y	End cap R
71	28325057	Volume knob ass'y
72	28325055Y	Tone knob
73	28325306Y	Knob, power
91	223021	Isolation sheet
92	260208	Wire tie
F901	252164Y	⚠ 5A-UL/T-237, Primary fuse <D/W>
F902	252076	⚠ 3.15A-SE-EAK, Primary fuse <P/W>
F903	252075	⚠ 2.5A-SE-EAK, Primary fuse <P>
F921,F922	252156Y	⚠ 1A-UL/T-237, Secondary fuse <D>
	252070	⚠ 1A-SE-EAK, Secondary fuse <P/W>
P901	253192HIT	⚠ AS-UC-6#18, Power supply cord <D>
	253193HIT	⚠ AS-CEE, Power supply cord <P>
	253092-1A	⚠ AS-CEE-2, Power supply cord <W>
	253197HIT	⚠ AS-SAA, Power supply cord <A>

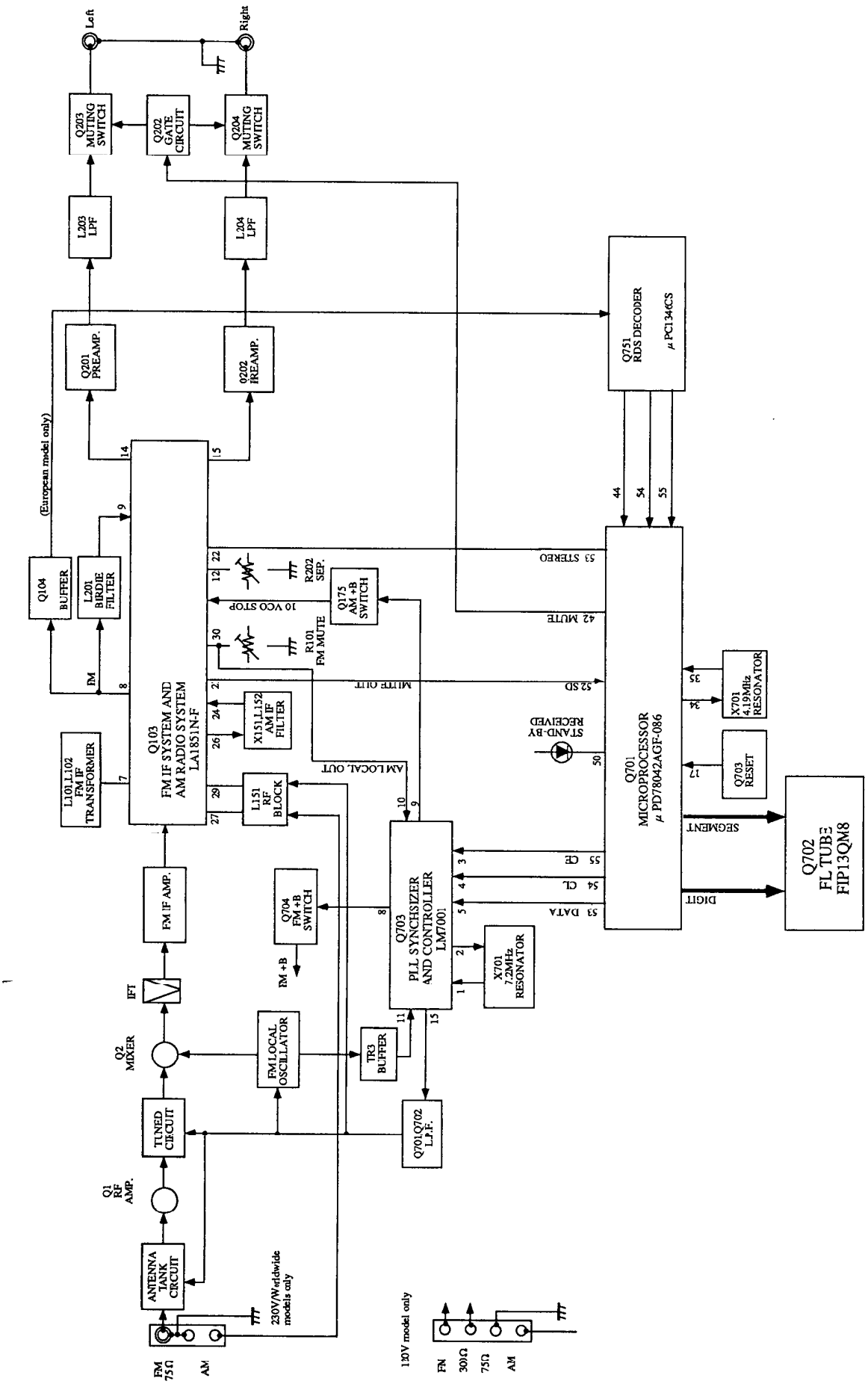
REF. NO.	PART NO.	DESCRIPTION
P904,P905	25051570	⚠ NSCT-2P1357,AC outlet <A>
Q521,Q522	2203063	2SC5198-O,Transistor
Q523,Q524	2203053	2SA1941-O,Transistor
Q821,Q822	2203043	2SC5197-O,Transistor
Q823,Q824	2203033	2SA1940-O,Transistor
T901	2301173Y	⚠ NPT-1261D, Power transformer <D>
	2301199Y	⚠ NPT-1261P, Power transformer <P>
	2301200Y	⚠ NPT-1261DG, Power transformer<W>
U1	1A682569-1AY	NAAR-5669-1A, Main circuit pc board ass'y <D>
	1A682569-1BY	NAAR-5669-1B, Main circuit pc board ass'y <P>
U2	1A682570-1AY	NAETC-5670-1A, Power supply circuit pc board ass'y <D>
	1A682570-1BY	NAETC-5670-1B, Power supply circuit pc board ass'y <P>
U4	1A682571-1AY	NADIS-5671-1A,Display circuit pc board ass'y <D>
	1A682571-1BY	NADIS-5671-1B,Display circuit pc board ass'y <P>
	1A682571-1CY	NADIS-5671-1C,Display circuit pc board ass'y <W>
	1A682571-1DY	NADIS-5671-1D,Display circuit pc board ass'y <A>
	1A682571-1EY	NADIS-5671-1E,Display circuit pc board ass'y <T>
U5	1A682572-1AY	NARF-5672-1A, Tuner circuit pc board ass'y <D>
	1A682572-1BY	NARF-5672-1B, Tuner circuit pc board ass'y <P>
	1A682572-1CY	NARF-5672-1C, Tuner circuit pc board ass'y <W>
	1A682572-1DY	NARF-5672-1D, Tuner circuit pc board ass'y <A>
	1A682572-1EY	NARF-5672-1E, Tuner circuit pc board ass'y <T>
U6	1A682573-1AY	NAPS-5673-1A, Power supply circuit pc board ass'y <D>
	1A682573-1BY	NAPS-5673-1B, Power supply circuit pc board ass'y <P>
	1A682573-1CY	NAPS-5673-1C, Power supply circuit pc board ass'y <W>
	1A682573-1DY	NAPS-5673-1D, Power supply circuit pc board ass'y <A>
	1A682573-1EY	NAPS-5673-1E, Power supply circuit
U7	1A682575-1AY	NAETC-5675-1A, Video circuit pc board ass'y <D>
	1A682575-1BY	NAETC-5675-1B, Video circuit pc board ass'y <P>
	1A682575-1CY	NAETC-5675-1C, Video circuit pc board ass'y <W>
	1A682575-1DY	NAETC-5675-1D, Video circuit pc board ass'y <A>

REF. NO.	PART NO.	DESCRIPTION
U7	1A682575-1EY	NAETC-5675-1E, Video circuit pc board ass'y <T>
U8	1A682578-1AY	NAETC-5678-1A, Primary circuit pc board ass'y <D>
	1A682578-1BY	NAETC-5678-1B, Primary circuit pc board ass'y <P>
	1A682578-1CY	NAETC-5678-1C, Primary circuit pc board ass'y <W>
	1A682578-1DY	NAETC-5678-1D, Primary circuit pc board ass'y <A>
	1A682578-1EY	NAETC-5678-1E, Primary circuit pc board ass'y <T>
U9	1A682574-1AY	NAETC-5674-1A,RI terminal pc board ass'y <D>
	1A682574-1BY	NAETC-5674-1B,RI terminal pc board ass'y <P>
	1A682574-1CY	NAETC-5674-1C,RI terminal pc board ass'y <W>
	1A682574-1DY	NAETC-5674-1D,RI terminal pc board ass'y <A>
	1A682574-1EY	NAETC-5674-1E,RI terminal pc board ass'y <T>
U10	1A682576-1AY	NAETC-5676-1A, Headphone terminal pc board ass'y <D>
	1A682576-1BY	NAETC-5676-1B, Headphone terminal pc board ass'y <P>
	1A682576-1CY	NAETC-5676-1C, Headphone terminal pc board ass'y <W>
	1A682576-1DY	NAETC-5676-1D, Headphone terminal pc board ass'y <A>
	1A682576-1EY	NAETC-5676-1E, Headphone terminal pc board ass'y <T>
U13	1A682579-1AY	NAAF-5679-1A, Surround circuit pc board ass'y <D>
	1A682579-1BY	NAAF-5679-1A, Surround circuit pc board ass'y <P>
U14	1A682580-1AY	NAAF-5680-1A, Center and rear amplifier circuit pc board ass'y <D>
	1A682580-1BY	NAAF-5680-1B, Center and rear amplifier circuit pc board ass'y <P>
U15	1A682575-1AY	NAETC-5675-1A,Preout terminal pc board ass'y <D>
	1A682575-1BY	NAETC-5675-1B,Preout terminal pc board ass'y <P>
	1A682575-1CY	NAETC-5675-1C,Preout terminal pc board ass'y <W>
	1A682575-1DY	NAETC-5675-1D,Preout terminal pc board ass'y <A>
	1A682575-1EY	NAETC-5675-1E,Preout terminal pc board ass'y <T>

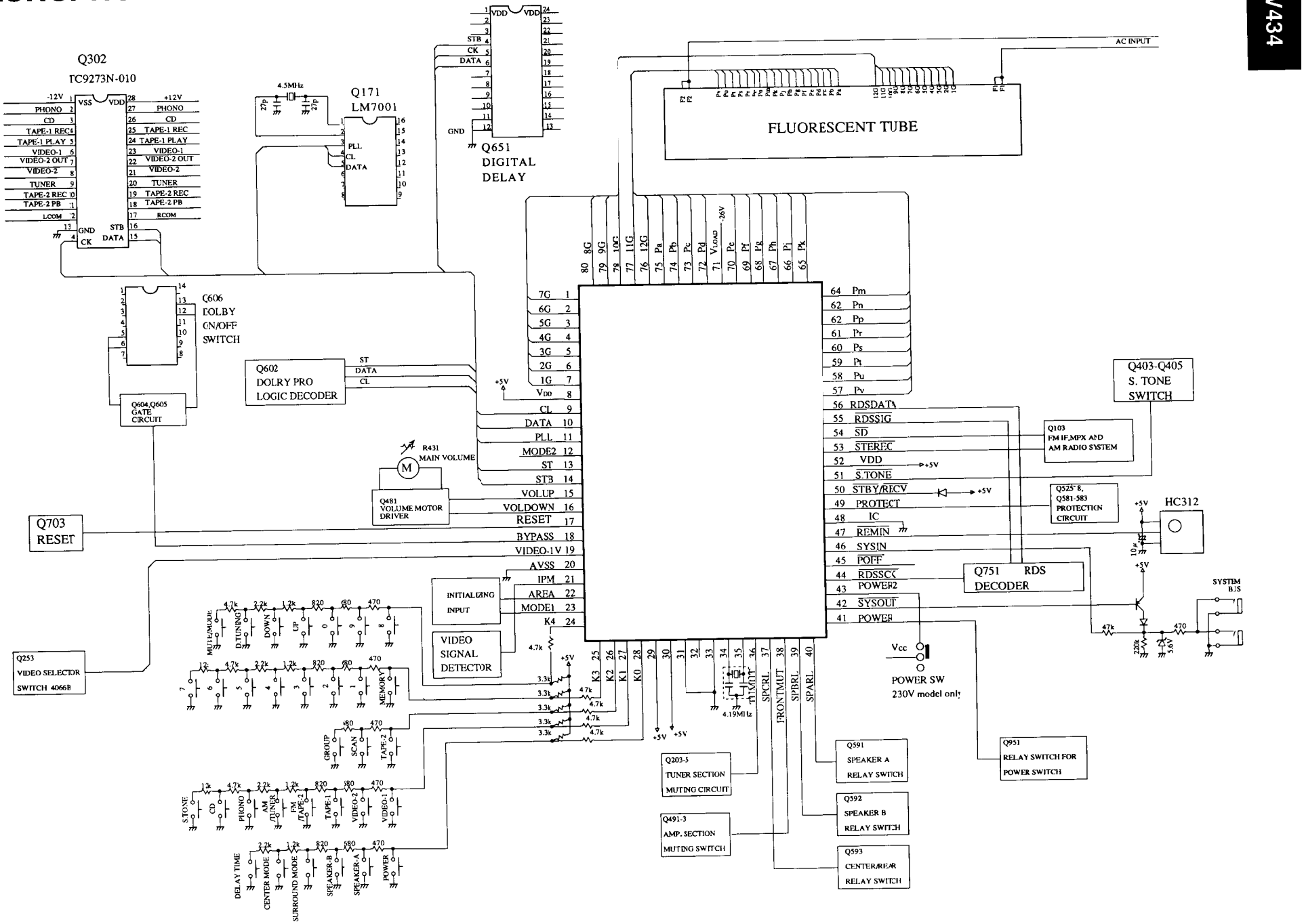
NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

BLOCK DIAGRAM




Left
Right
Q203 MUTING SWITCH
Q202 GATE CIRCUIT
Q204 MUTING SWITCH
L203 LPF
L204 LPF
Q751 RDS DECODER
μ PC1346CS
Q201 PREAMP.
Q202 IREAMP.
(European model only)
Q104 BUFFER
L201 BIRDIE FILTER
Q103 FM IF SYSTEM AND AM RADIO SYSTEM LA1851N-F
R202 SEP.
Q175 AM +B SWITCH
R101 FM MUTE
10 VCO STOP
53 STEREO
42 MUTE
52 SD
MUTE OUT
FM
AM
X151,L152 AM IF FILTER
L101,L102 FM IF TRANSFORMER
L151 RF BLOCK
AM LOCAL OUT
STAND-BY RECEIVED
Q701 MICROPROCESSOR μ PD78042AGF-086
X701 4.19MHz RESONATOR
Q703 RESET
SEGMENT
DIGIT
Q702 FL TUBE FIP13QM8
55 CE
54 CL
53 DATA
FM IF AMP.
Q704 FM +B SWITCH
FM +B
Q703 PLL SYNCHSIZER AND CONTROLLER LM7001
X701 7.2MHz RESONATOR
IFT
Q2 MIXER
FM LOCAL OSCILLATOR
TR3 BUFFER
TUNED CIRCUIT
Q701,Q702 I.F.
Q1 RF AMP.
ANTENNA TANK CIRCUIT
230V/Worldwide models only
120V model only
FM 75Ω
AM
FM
300Ω
75Ω
AM

MICROPROCESSOR CONNECTION DIAGRAM

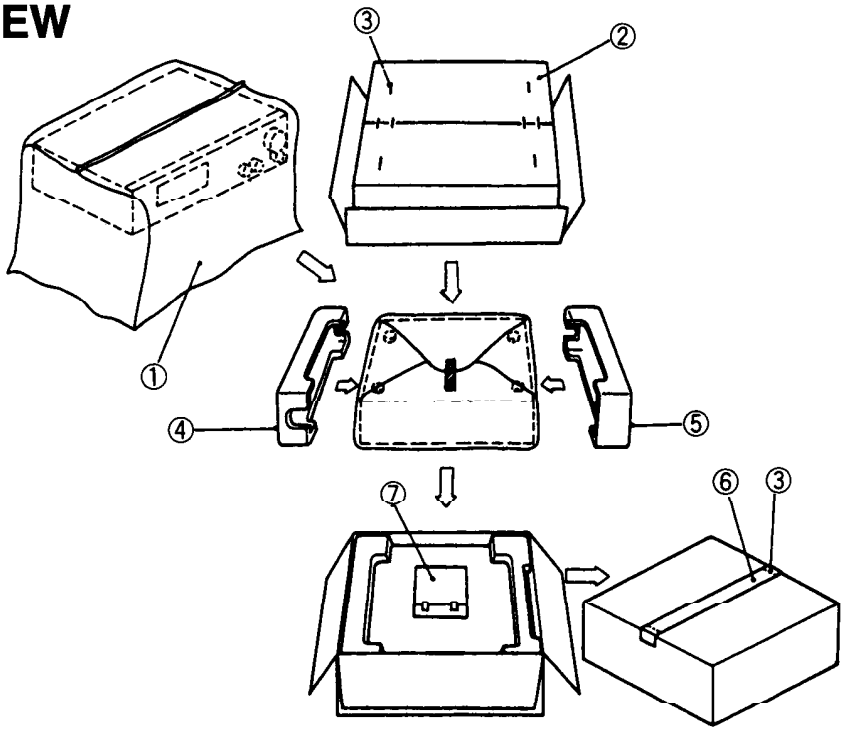


TERMINAL DESCRIPTION

Pin No.	Function	I/O	Description
1~7	7G~1G	O	Grid control output pin. On at the high level.
8	VDD		Power supply pin (+5V)
9	CL	O	Clock output pin. Connect to the terminals CK of function switch Q302, Dolby pro logic decoder Q602, digital delay Q651 and PLL IC Q171.
10	DATA	O	Data output pin. Connect to the terminals DATA of function switch Q302, Dolby pro logic decoder and digital delay.
11	PLL	O	Chip enable output pin for PLL IC
13	SEL	O	Chip enable output pin. Connect to the terminals ST of function switch Q302, terminal STB of Dolby pro logic decoder and digital delay.
15	VOLUP	O	Volume control output pin
16	VOLDOWN	O	Refer table 1.
17	$\overline{\text{RESET}}$	I	System reset input pin
18	BYPASS	O	Dolby pro logic ON/OFF control output pin
19	VIDEO-1V	O	Video switch control output pin
20	AVSS		Ground pin of A/D converter
21	IPM	I	Video signal detection input pin
22	BAND	I	Initializing input of band region
23	MODE1	I	Initializing input of operation mode
24	K4	I	Operation key connection pin
25	K3	I	Operation key connection pin
26	K2	I	Operation key connection pin
27	K1	I	Operation key connection pin
28	K0	I	Operation key connection pin
29	AVDO		Analogue power supply of A/D converter
30	AVREF		Reference voltage input pin of A/D converter
31	XT1		Crystal connection pin for sub system clock resonator
32	XT2		Not used.
33	VSS		Ground pin
34	X1		Resonator connection terminal for main system clock
35	X2		Connect the ceramic resonator 4.19MHz.
36	TMUT	O	Muting output pin for tuner section
37	SPCRL	O	Center/Surround speaker relay control output pin
38	SMUT	O	Muting output pin for amplifier section
39	SPBRL	O	Relay control pin for front speaker B
40	SPARL	O	Relay control pin for front speaker A
41	POWER	O	Power source control output pin
42	$\overline{\text{SYSOUT}}$	O	System code output pin
43	POWER2	I	Power switch connection pin
44	$\overline{\text{RDSSCK}}$	I	Clock input pin from RDS decoder IC μPD1346CS
45	$\overline{\text{POFF}}$	I	Power stoppage detector input pin
46	SYSIN	I	System code input pin
47	$\overline{\text{REMIN}}$	I	Remote control signal input pin
48	IC		Internal connection pin. Connect to the ground terminal.
49	PROTECT	I	Detector input pin of protection circuit. H:On
50	$\overline{\text{STBY/RECV}}$	O	Standby and received indicator output pin
51	$\overline{\text{S.TONE}}$	O	Selective tone control output pin
52	VDD		Power supply pin (+5V)
53	$\overline{\text{STEREO}}$	I	Detector input pin of FM stereo broadcast
54	SD	I	Detector input pin of broadcast more than muting level
55	$\overline{\text{RDSSIG}}$	I	Detector input pin of RDS broadcast. L:RDS broadcast
56	RDSDATA	I	Data input pin from RDS decoder μPD1346CS
57~70	Pv~Pe	O	Segment output pins. On at the high level.
71	VLOAD	I	Pull-down resistor connection pin of controller and driver of FL.
72~75	Pd~Pa	O	Segment output pins. On at the high level.
76~80	12G~8G	O	Grid control output pin. On at the high level.

Operation	#39	#40
VOLUME UP	H	L
VOLUME DOWN	L	H
STOP	H	H

PACKING VIEW



REF. NO.	PART NO.	DESCRIPTION
1	29100034-1AY	850×650, Styren bag
2	29052977Y	Carton box
	29052978Y	Carton box <European model only>
3	282301	Staple
4	29091651BY	Pad L
5	29091652CY	Pad R
6	29110071	PP tape
7	Accessary bag ass'y	
	232140	NMA-3057, AM loop antenna
	292111	FM antenna <D>
	292112	FM antenna <P/W>
	2010200	Remote control cable
	3010054	UM-3, Two batteries
	25055018	CV-K-1, Conversion plug <W>
	25065462	YAE21-0237, FM antenna adaptor <W/A>
	29095745	Sheet U7 <P>
	24140295Y	RC-295S, Remote control transmitter
	29100097-1AY	350×250, Styren bag
	29342273Y	Instruction manual, English
	29342274Y	Instruction manual U3 <W>
	29342275Y	Instruction manual U6 <P>
	29358002K	Service station list <N>
	29360778Y	Label, flash <D>
	29361944Y	Label UPC <N>
	29365019B	Warranty card <N>

ADJUSTMENT PROCEDURES

Preparation

1.Input

FM mono:1kHz,75kHz devi.,60dB/ μ V

FM stereo:1kHz,75kHz devi.,60dB/ μ V

Pilot signal 19kHz 7.5kHz devi.

AM:400Hz 30% mod.

2.Outputs

Connect the non-inductive type resistors of 8 ohms to the speaker terminals A unless otherwise noted.

3. Standard Knob Positions

Master Volume Control .....Maximum
Bass Control .....Center
Treble Control .....Center
Balance Control .....Center
Input selector .....CD
Tape 2 Monitor.....OFF
Muting .....OFF
Selective tone .....OFF
Speaker A .....ON
Speaker B.....OFF
Dolby Surround.....OFF
Center Mode .....Wide Band
Delay Time.....20 ms
Center Level .....0 dB
Rear Level .....0 dB

Idling Current Adjustment

Connect the DC voltmeter to the terminals P521, P522, and P821 (VCT and IID) on the main circuit pc board. Adjust the trim resistors R533, R534 and R837 so that the indicator of voltmeter becomes-3.25 $\pm$ 0.25mV.

NOTE:Adjust after switching on for 5 minutes.

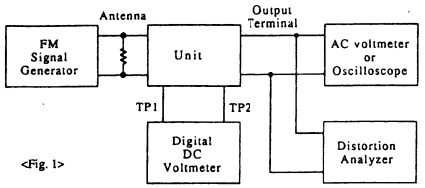
Set Volume knob to the minimum position.

Set the unit to the test mode.

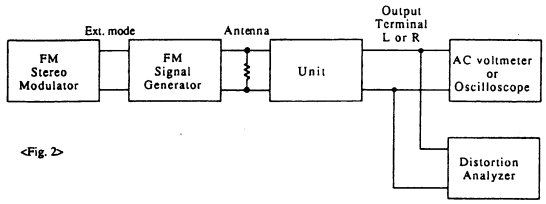
1. Press and hold down the CD button, then press the Power button.
2. " TEST-" is displayed on the display.
3. While "TEST-" is displayed, press the FM key.

FM ADJUSTMENT

Item	Step	Connection of instrument	FM SG output	Stereo modulator output	Tuning frequency	Output indicator	Adjustment point	Adjust for	Remarks
FM IF/RF	1	Fig.1	99.0MHz 1kHz 75kHz devi 65dBf(60dB)	——	99.0MHz	DC voltmeter	L101	0±20mV	FM MUTE/MODE switch:ON/STEREO Repeat the steps 1 and 3 until no further adjustment is necessary.
	2					AC voltmeter	IFT on the front end	Maximum	
	3					Distortion analyzer	L102	Minimum	
Stereo Distortion		Fig.2	99.0MHz Ext. mod.65dBf(60dB)	Channel L or R 1kHz	99.0MHz	Distortion analyzer	IFT on the front end	Minimum	Don't turn more than ±180°
Stereo Separation	1	Fig.2	99.0MHz Ext. mod. 65dBf(60dB)	Channel L 1kHz	99.0MHz	Channel R AC voltmeter	R202	Minimum	Maximum and same separation
	2			Channel R 1kHz		Channel L AC voltmeter		Minimum	
Muting Level		Fig.2	99.0MHz 21.2dBf(16dB) <P/W models> 23.2dBf(18dB) <D model>	——	99.0MHz	Oscilloscope or TUNED indicator	R101	Signal output or light on	
RDS		Fig.3	99.0MHz Ext. mod.40dB	RDS data or 57kHz 3% devi.	99.0MHz	Oscilloscope	R786	Maximum	European model only



<Fig. 1>



<Fig. 2>

<Fig. 3>

AM ADJUSTMENT

120V model

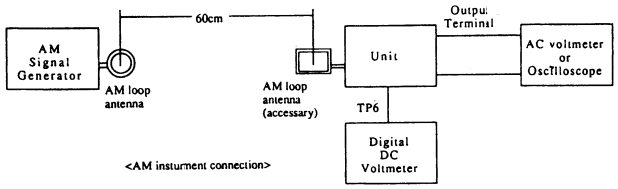
Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		530kHz	Digital DC voltmeter	OSC coil on RF block L151	1.3±0.1V
2	600kHz 400Hz 30% mod. 60dB/m	600kHz	AC voltmeter	RF coil on RF block L151	Maximum
3	990kHz 400Hz 30% mod. 60dB/m	990kHz	AC voltmeter	L152	Maximum

Reference Specification
FM tuned voltage:87.9MHz~107.9MHz
More than 1.3V~Less than 10V
AM tuned voltage:530kHz~1710kHz
1.3±0.2V~Less than 9.0V

230V and worldwide models

Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		522kHz or 531kHz	Digital DC voltmeter	OSC coil on RF block L151	1.3±0.1V
2	603kHz 400Hz 30% mod. 60dB/m	603kHz	AC voltmeter	RF coil on RF block L151	Maximum
3	999kHz 400Hz 30% mod. 60dB/m	999kHz	AC voltmeter	L152	Maximum

Reference Specification
FM tuned voltage:87.5MHz~108.0MHz
More than 1.3V~Less than 10V
AM tuned voltage:522kHz~1611kHz
1.3±0.2V~Less than 9.0V
(230V model)
AM tuned voltage:531kHz~1602kHz
1.3±0.2V~Less than 9.0V
(Worldwide model)



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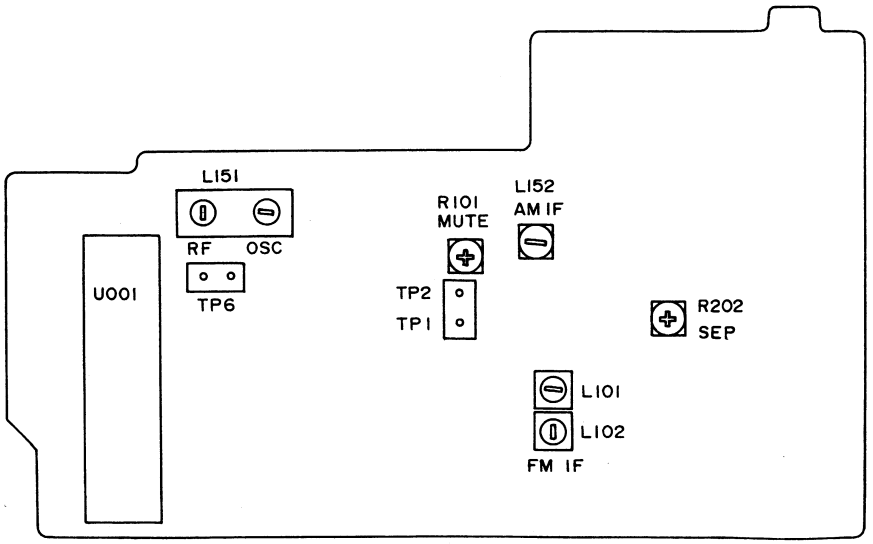


PRINTED CIRCUIT BOARD-PARTS LIST

MAIN CIRCUIT PC BOARD (NAAR-5669-1A/1B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q281	22240293	NJM4558L-D
Q301	222502	NJM4558D-X
Q302	22240881	TC9273N-010
Q401,Q402	22240250	NJM2068L-D
Q481	22240239	TA7291S
Q571	22240752	NJM4556L
Q921	222780125NEC	μPC78M12AHF
Q922	222790125	79M12HF
Q923	222780565JRC	NJM78M56FA
	Transistors	
Q282	2212600	DTA124ES
Q283	2213816	2SD1450-T
Q403~Q406	2211945	2SK246-GR
Q407	2213510	DTA114ES
Q491,Q492	2213631	RN1241-A
Q493	2213510	DTA114ES
Q501~Q504	2211732 or	* 2SC1845-F or
	2211733	* 2SC1845-E
Q505,Q506	2213354	2SA933S-R
Q507,Q508	2211732 or	2SC1845-F or
	2211733	2SC1845-E
Q509,Q510	2213284	2SC1740S-R
Q511,Q512	2211353	2SA940-O
Q513,Q514	2211633	2SC2229-O
Q515,Q516	2213284	2SC1740S-R
Q517,Q518	2203010	2SC5171
Q519,Q520	2203000	2SA1930
Q521,Q522	2203063	2SC5198-O
Q523,Q524	2203053	2SA1941-O
Q525,Q526	2211732 or	2SC1845-F or
	2211733	2SC1845-E
Q527,Q528	2213354	2SA933S-R
Q581,Q582	2211732 or	2SC1845-F or
	2211733	2SC1845-E
Q583	2211792	2SA992-F
Q591~Q593	2213640	DTC123JS
Q924	2211455	2SA1015-GR
	Diodes	
D281,D282	223163	1SS133
D401~D404	223163	1SS133
D501,D502	22380032	1SR139-100
D591,D592	223163	1SS133
D911	22380038	RBV602
D915~D921	22380032	1SR139-100
D922	224473304	MTZJ33D
D923.D924	223163	1SS133
	Relaies	
RL591,RL592	25065485 or	NRL 2P2A DC24 086 or
	25065517Y	NRL-2P5A-DC24-098
	Coils	
L501,L502	231176S	S-1.3C
	Capacitors	
C281~C283	354741009	10μF,16V,Elect.
C284	354780229	2.2μF,50V,Elect.
C285.C286	354741009	10μF.16V.Elect.
C303,C304	354741009	10μF,16V,Elect.
C307,C308	354721019	100μF,6.3V,Elect.
C309,C310	374726224	6200pF±5%,50V,Plastic
C311,C312	374721824	1800pF±5%,50V,Plastic
C313~C316	354741009	10μF,16V,Elect.
C391,C392	374721015	100pF±10%,50V,Plastic
C401,C402	354741009	10μF,16V,Elect.
C411,C412	354741009	10μF,16V,Elect.
C413~C416	374721044	0.1μF±5%,50V,Plastic
C417~C420	374721024	1000pF±5%,50V,Plastic
C421,C422	374721534	0.015μF±5%,50V,Plastic
C433,C434	374721534	0.015μF±5%,50V,Plastic
C435.C436	374721015	100pF±10%,50V,Plastic
C437	374721044	0.1μF±5%,50V,Plastic
C441	354721019	100μF,6.3V,Elect.
C442	354780479	4.7μF,50V,Elect.
C501,C502	354741009	10μF,16V,Elect.
C503,C504	374721015	100pF±10%,50V,Plastic
C507,C508	354724719	470μF,6.3V,Elect.
C513,C514	354722219	220μF,6.3V,Elect.
C515,C516	354774719	470μF,63V,Elect.
C521,C522	354772209	22μF,63V,Elect.
C529,C530	374721044	0.1μF±5%,50V,Plastic
C581	354721019	100μF,6.3V,Elect.
C915,C916	3504280	8200μF,56V,Elect.
C918	354761029	1000μF,35V,Elect.
C919	354763319	330μF,35V,Elect.
C922~C926	354781009	10μF,50V,Elect.
C928,C929	354781019	100μF,50V,Elect.
C932	354781009	10μF,50V,Elect.
	Resistors	
R393	5104288	N11RLC250KWT20Z,Balance
R409,R415	5104356	N14RLC100KWT20Z,Tone
R533,R534	5210259	N06HR 2KBC, Trim
R539,R540	4500091	68 Ohm±5%,1/4W,Metal
R541,R542	4500107	330 Ohm±5%,1/4W Metal
R545,R546	4000132	RGC55 0.22 OHMK, Metal plate
R551,R552	453630824	8.2 Ohm±5%,1W,Metal
R563,R564	4500055	2.2 Ohm±5%,1/4W,Metal
R565,R566	443623914	390 Ohm±5%,1W,Metal oxide
R933	4500087	47 Ohm±5%,1/4W,Metal
	Switch	
S281	25065286	NSS-22112, Slide
	Terminals	
P301~P303	25045300	NPJ-6PDBL159
P501	25060224	NTM-8PDML146
P504	25045302	NPJ-1PDBL161
	Sockets	
P711a,P712a	25051046	NSCT-10P833
P713a	25051047	NSCT-13P834
	Plugs	
P211a	25055652	NPLG-14P608
P611a	25055678	NPLG-8P634
P612a	25055649	NPLG-8P605
P613a	25055651	NPLG-12P607
	Wire holders	
JL261a,JL262a	25051089	NSCT-5P876
JL811a	25051107	NSCT-3P894
JL812a	25051111	NSCT-7P898
JL912a	25051108	NSCT-4P895
JL913a	25051109	NSCT-5P896
	Radiators	
Q921a	27160209	RAD-67
D911a	27160227	RAD-076

POWER SUPPLY CIRCUIT PC BOARD (NAETC-5670-1A/1B)

CIRCUIT NO.	PART NO.	DESCRIPTION
F921,F922	252156Y	⚠ 1A-UL/T-237, Secondary fuse <D>
	252070	⚠ 1A-SE-EAK, Secondary fuse <P/W>
F921a,F922a	25050065	⚠ YSH403T,Fuseholder
JL912b	25051108	NSCT-4P895,Wire holder
JL913b	25051109	NSCT-5P896,Wire holder
C995~C998	374731044	0.1 μ F±5%,100V,Plastic <P/W>

DISPLAY CIRCUIT PC BOARD (NADIS-5671-1A/1B/1C/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Remote sensor	
U701	24130010	HC-312
	ICs	
Q701	22240992	μ PD78042AGF-086
Q751	22240679	μ PC1346CS <P>
	FL tube	
Q702	212143	FIP13QM8
	Transistors	
Q703	221282	DTC144ES
Q704~Q706	2213284	2SC1740S-R
Q707	2213510	DTA114ES
	Diodes	
D701,D702	223163	1SS133
D703	224470913	MTZJ9.1C
D704,D705	223163	1SS133
D706,D707	224470562	MTZJ5.6B
D708	223163	1SS133
D709	225291D	SEL4910D-D.LED
D710~D712	223163	1SS133
D751	223163	1SS133 <P>
	Coils	
L701~L703	233454K220	NCH-1452,220K
	Resonators	
X701	3010163	CST4.19MGW,Ceramic
X751	3010203	AF6146CG <P>
	Capacitors	
C701	3000075	0.047F, 5.5V, Super
C702	375524744	0.47 μ F±5%,50V,Plastic
C703	354721019	100 μ F,6.3V,Elect.
C704	354780109	1 μ F,50V,Elect.
C706,C707	354780109	1 μ F,50V,Elect.
C709,C711	354721019	100 μ F,6.3V,Elect.
C751	354721019	100 μ F,6.3V,Elect. <P>
C754,C760	374724724	4700pF±5%,50V,Plastic <P>
C755,C756	374723324	3300pF±5%,50V,Plastic <P>
C757	354780229	2.2 μ F,50V,Elect. <P>
C758	374724734	0.047 μ F±5%,50V,Plastic <P>
C759	374722234	0.022 μ F±5%,50V,Plastic <P>
	Resistor	
R786	5210265	N06HR50KBC, Trim
	Wire holder	
JL711a	25051090	NSCT-6P877
	Plugs	
P711b,P712b	25055695	NPLG-10P615
P713b	25055660	NPLG-13P616
	Switches	
S701	25035652	NPS-111-S604 <D/W>
S702~S717	25035652	NPS-111-S604
S723~S737	25035652	NPS-111-S604
S738	25035653	⚠ NPS-122-L605 <P>
	Holder	
Q702a	27190937AY	FL

TUNER CIRCUIT PC BOARD (NARF-5672-1A/1B/1C/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Front end	
U001	240098Y	ENV172D1G1 <D>
	240103Y	ENV172A2G1 <P/W>
	ICs	
Q103	22240983	LA1851N-F
Q171	22240090	LM7001
	Transistors	
Q101	2210746	2SC945A-P <P/W>
Q102	2211723	2SC1923-O
Q104	2213284	2SC1740S-R <P>
Q172	2212445	2SK365-GR
Q173	2213284	2SC1740S-R
Q174,Q175	2213510	DTA114ES
Q201,Q202	2213284	2SC1740S-R
Q203,Q204	2212794	2SD1468-R
Q205	2213510	DTA114ES
	Diode	
D171	224470512	MTZJ5.1B
	Coils and transformers	
L101	233480AY	NFIF-4090
L102	233481Y	NFIF-4091
L103	233454M022	NCH-1452
L104	233383	NMC-6070 <P/W>
L151	231226Y	NMRF-7069
L152	232166Y	NMIF-4089
L201,L202	233355A or	NMC-4059 or
	232165Y	NMC-4083 <P/W>
	Ceramic filters	
X101	3010071	SFE10.7MA5
X102	3010071	SFE10.7MA5 <P/W>
X103	3010071	SFE10.7MA5 <D>
	3010130	SFE10.7MZ2A <P/W>
X151	3010123	SFZ-450JL
	Resonators	
X171	3010158 or	XTL7.2M or
	3010141	XTL7.2M,Crystal
X201	3010268Y	CSB456F23,Ceramic
	Capacitors	
C001	354741019	100 μ F,16V,Elect.
C107-C109	354780229	2.2 μ F,50V,Elect.
C110	354741019	100 μ F,16V,Elect.
C133	354784799	0.47 μ F,50V,Elect.
C151	354741009	10 μ F,16V,Elect.
C155,C156	354741009	10 μ F,16V,Elect.
C157	374723324	3300pF±5%,50V,Plastic
C158	374721534	0.015 μ F±5%,50V,Plastic <D>
	374721034	0.01 μ F±5%,50V,Plastic <P/W>
C159	354721019	100 μ F,6.3V,Elect.
C171	354741019	100 μ F,16V,Elect.
C174	374723334	0.033 μ F±5%,50V,Plastic
C175	354780229	2.2 μ F,50V,Elect.
C176	374722234	0.022 μ F±5%,50V,Plastic
C177	354782299	0.22 μ F,50V,Elect.
C180	354721019	100 μ F,6.3V,Elect.
C201,C202	354780109	1 μ F,50V,Elect.
C203	354783399	0.33 μ F,50V,Elect.
C204	354741019	100 μ F,16V,Elect.
C205,C206	374721534	0.015 μ F±5%,50V,Plastic <D>
	374721034	0.01 μ F±5%,50V,Plastic <P>
	374721234	0.012 μ F±5%,50V,Plastic <W>
C207~C210	354741009	10 μ F,16V,Elect. <D>

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C213~C216	354741009	10 μ F,16V,Elect. <P/W>
C217	354780229	2.2 μ F,50V,Elect.
	Resistors	
R101	5210263	N06HR 20KBC, Trim
R202	5210261	N06HR 5KBC, Trim
	Terminals	
P101	25060160 or	NTM-4PDML086 or
	25060225Y	NTM-4PDML147 <D>
	25060117	NTM-2PDML051 <P/W>
	Socket	
P211b	25050986	NSCT-14P773
	Shield plate	
	27150346	<P/W>

POWER SUPPLY CIRCUIT PC BOARD (NAPS-5673-1A/1B/1C/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistor	
Q951	2213640	DTC123JS
	Diodes	
D951	22380032	1SR139-100 <P/W>
D952	22380032	1SR139-100
D953,D954	22380032	1SR139-100 <P/W>
D955	223163	1SS133
	Capacitors	
C901	3500191Y	⚠ DE7150FZ103PAC400V/125V
C952	354743319	330 μ F,16V,Elect.
	Resistors	
R901	431523355	⚠ 3.3 MOhm±20%,1/2W,Solid <D>
R951	453530824	8.2 Ohm±5%,1/2W,Metal <P/W>
	Fuses	
F901	252164Y	⚠ 5A-UL/T-237, Primary <D/W>
F902	252076	⚠ 3.15A-SE-EAK, Primary <P/W>
F903	252075	⚠ 2.5A-SE-EAK, Primary <P>
	Fuseholders	
F901a	25050065	⚠ YSH403T <D/W>
F902a	25050065	⚠ YSH403T <P/W>
F903a	25050065	⚠ YSH403T <P>
	Socket	
JL961a	25051088	NSCT-4P875
	AC outlet	
P902	25051126	⚠ NSCT-4P913 <D>
P903	25051125	⚠ NSCT-4P912 <P/W>
	Plug	
P901a	25055675	NPLG-2P631 <D/P>
	Relay	
RL901	25065483	⚠ NRL-1P5A-DC12-084
	Power transformer	
T902	2300670A	⚠ NPT-1111D <D>
	2300671AY	⚠ NPT-1111P <P>
	2300672AY	⚠ NPT-1111DG <W>
	Switch	
S901	25065437	⚠ NSS-22157P, Voltage selector <W>

RI TERMINAL PC BOARD (NAETC-5674-1A/1B/1C/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
P961	25045330	NPJ-2PDBL184,Terminal RI
JL711b	25055627	NPLG-6P589,Wire trap
JL961b	25051088	NSCT-4P875,Wire holder
S961	25065286	NSS-22112,Band switch <W>

VIDEO CIRCUIT PC BOARD (NAETC-5675-1A/1B/1C/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q251,Q252	2212115 or	2SC2458-GR or
	2213284	2SC1740S-R
	IC	
Q253	222840661	4066B
	Diode	
D251	223163	1SS133
	Capacitors	
C251,C252	354721019	100 μ F,6.3V,Elect.
C255,C256	354724719	470 μ F,6.3V,Elect.
C257	354721019	100 μ F,6.3V,Elect.
C259	354741019	100 μ F,16V,Elect.
	Wire trap	
JL261b	25055626	NPLG-5P588
	Terminal	
P251	25045339	NPJ-4PDYE190

HEADPHONE TERMINAL PC BOARD (NAETC-5676-1A1B/1C/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
P503	25045255	YKB21-5009,Headphone terminal

PREOUT TERMINAL PC BOARD (NAETC-5677-1A/1B/1C/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
P502	25045460	NPJ-4PDBL281,Terminal
P504	25045456	NPJ-2PDBL277,Terminal
JL262b	25055626	NPLG-6P589,Wire trap

SURROUND CIRCUIT PC BOARD (NAAF-5679-1A/1B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q601	22240247 or	BA15218N or
	22240293	NJM4558L-D
Q602	22240994	NJW1102L
Q606	22240025	LC4966
Q651	22240686 or	M65830P or
	22240995	NJU9702
	Transistors	
Q604	2212600	DTA124ES
Q605	2213160	DTC124ES
Q607,Q608	2213631	RN1241-A
	Diodes	
D601,D651	224470562	MTZJ5.6B
D652,D653	223163	1SS133
	Capacitors	
C601,C602	354780229	2.2 μ F,50V,Elect.
C605,C606	354781009	10 μ F,50V,Elect.
C607	354744709	47 μ F,16V,Elect.
C608	354741019	100 μ F,16V,Elect.
C609,C610	354752209	22 μ F,25V,Elect.
C611~C614	375521044	0.1 μ F±5%,50V,Plastic
C615,C616	374726814	680pF±5%,50V,Plastic
C617,C618	374722234	0.022 μ F±5%,50V,Plastic
C619~C622	354781099	0.1 μ F,50V,Elect.
C623,C624	374724734	0.047 μ F±5%,50V,Plastic
C625~C628	354782299	0.22 μ F,50V,Elect.
C629,C630	354780479	4.7 μ F,50V,Elect.
C631	354786899	0.68 μ F,50V,Elect.
C632	374724734	0.047 μ F±5%,50V,Plastic
C633,C656	374725624	5600pF±5%,50V,Plastic
C634	374725615	560pF±10%,50V,Plastic

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C635	374721024	1000pF±5%,50V,Plastic
C636	354780479	4.7μF,50V,Elect.
C637	354722219	220μF,6.3V,Elect.
C638,C644	354781099	0.1μF,50V,Elect.
C639~C643	354781009	10μF,50V,Elect.
C645	374724724	4700pF±5%,50V,Plastic
C651	374722224	2200pF±5%,50V,Plastic
C652,C653	374725615	560pF±10%,50V,Plastic
C654,C655	375521044	0.1μF±5%,50V,Plastic
C657	354744709	47μF,16V,Elect.
C658,C659	374724734	0.047μF±5%,50V,Plastic
C660	354781009	10μF,50V,Elect.
C661,C662	354721019	100μF,6.3V,Elect.
	Resonator	
X651	3010217	CST2.04MG040,Ceramic
	Resistor	
R641	5104332Y	N16RQL100KBT25F
	Sockets	
P611b	25051127	NSCT-8P914
P612b	25050983Y	NSCT-8P770
P613b	25050986Y	NSCT-14P773
P621a	2000802UL	NSAS-6P758
	Plug	
P622a	25055405	NPLG-3P387

CIRCUIT NO.	PART NO.	DESCRIPTION
	Relay	
RL801	25065485 or	NRL-2P2A-DC24-086 or
	25065517Y	NRL 2P5A DC24 098
	Terminal	
P801	25060191	NTM-6PDML113
	Plug	
P621b	25055234	NPLG-3P218
	Wire traps	
JL811b	25050280	NSCT-3P108
JL812b	25050284	NSCT-7P112

NOTE: <D>:120V model only
<P>:230V model only
<W>:Worldwide model only

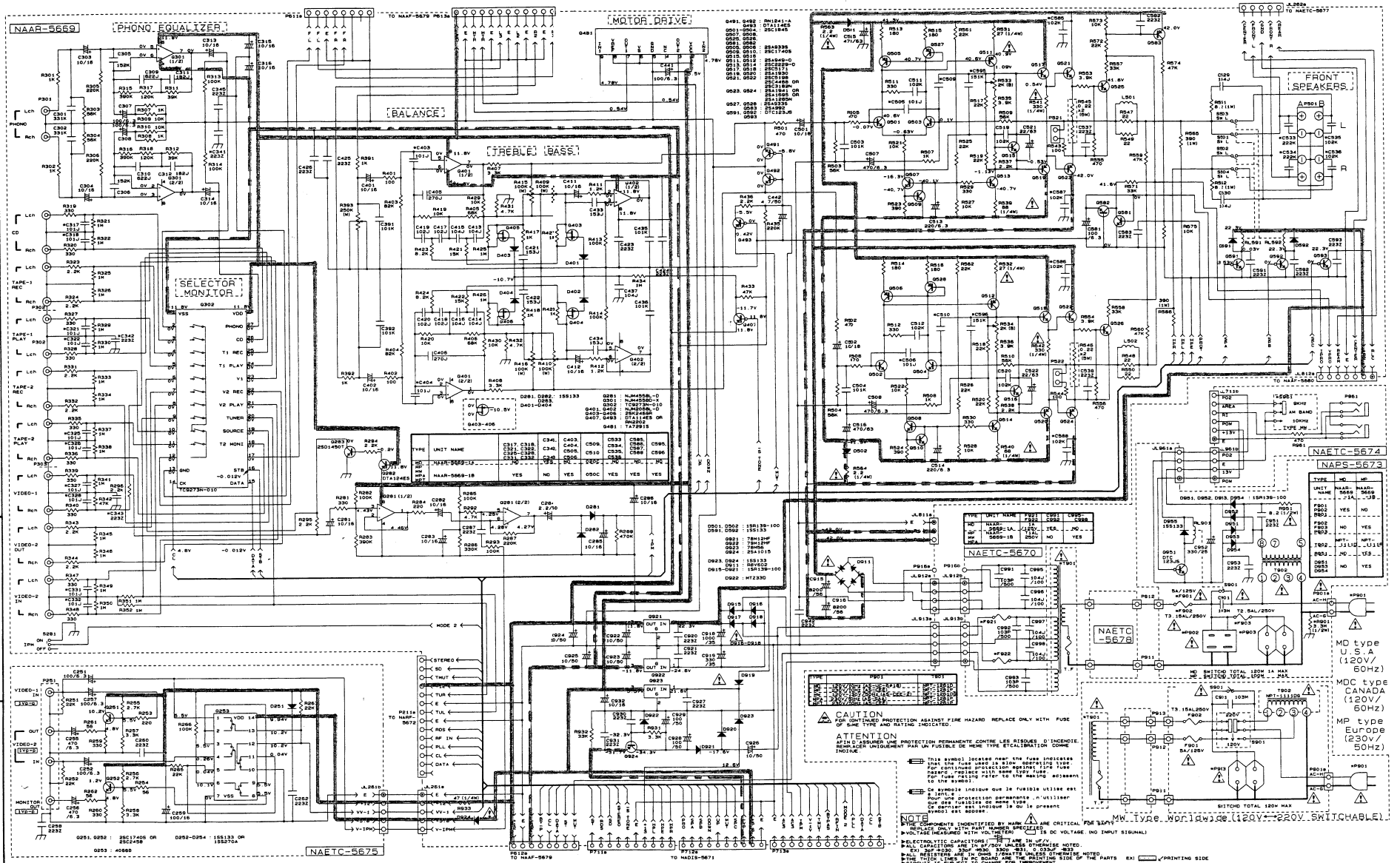
CAUTION: Replacement for transistor of mark *, if necessary, must be made from the same beta group (HFE) as the original type.

NOTE:THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

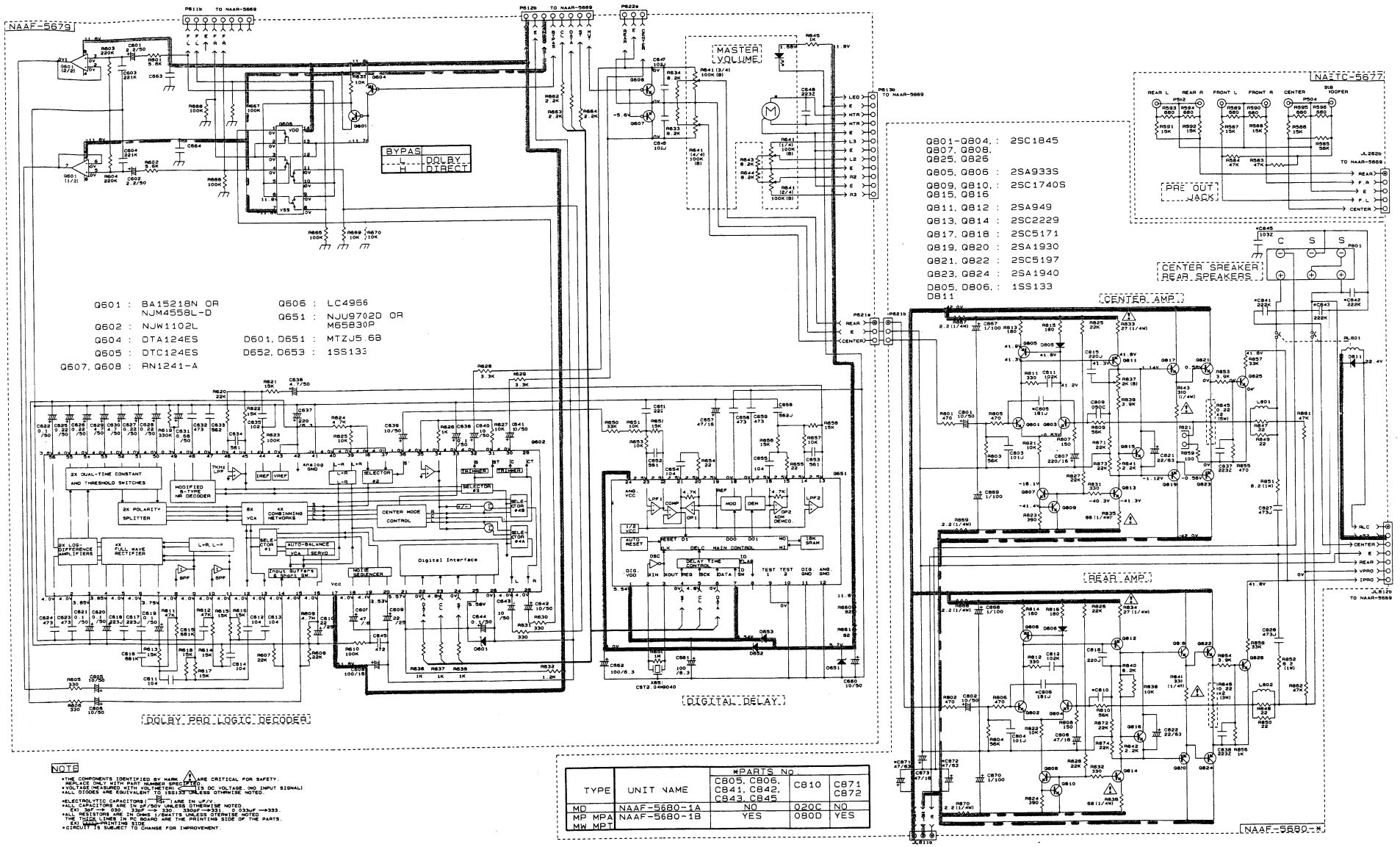
CENTER AND REAR AMPLIFIER CIRCUIT PC BOARD (NAAF-5680-1A/1B)

CIRCUIT NO.	PART NO.		DESCRIPTION
	Transistors		
Q801~Q804	2211732 or	*	2SC1845-F or
	2211733	*	2SC1845-E
Q805,Q806	2213354		2SA933S-R
Q807,Q808	2211732 or		2SC1845-F or
Q825,Q826	2211733		2SC1845-E
Q809,Q810	2213284		2SC1740S-R
Q811,Q812	2211353		2SA940-O
Q813,Q814	2211633		2SC2229-O
Q815,Q816	2213284		2SC1740S-R
Q817,Q818	2203010		2SC5171
Q819,Q820	2203000		2SA1930
Q821,Q822	2203043		2SC5197-O
Q823,Q824	2203033		2SA1940-O
	Diodes		
D805,D806	223163		1SS133
D811	223163		1SS133
	Coils		
L801,L802	231176S		S-1.3C
	Capacitors		
C801,C802	354741009		10μF,16V,Elect.
C807	354742219		220μF,16V,Elect.
C808,C873	354744709		47μF,16V,Elect.
C821,C822	394772209		22μF,63V,Elect.
C827,C828	374724734		0.047μF±5%,50V,Plastic
C867~C870	354790109		1μF,100V,Elect.
	Resistors		
R835,R836	4500091		68 Ohm±5%,1/4W,Metal
R837	5215043		N08HR 2KBC, Trim
R843,R844	4500107		330 Ohm±5%,1/4W,Metal
R845	4000132		RGC55 0.22 OHMK, Metal plate
R846	4000131		RGC22 0.22 OHMK, Metal plate
R851,R852	453630824		8.2 Ohm±5%,1W,Metal
R867~R870	4500055		2.2 Ohm±5%,1/4W,Metal

SCHEMATIC DIAGRAM PART-1



SCHEMATIC DIAGRAM PART-2



NOTE

- *THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE MEASURED WITH VOLTMETER( ) DC VOLTAGE. (NO INPUT SIGNAL)
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS ARE IN uF/V, CERAMIC CAPACITORS ARE IN pF/50V UNLESS OTHERWISE NOTED. 0.033uF →333.
- ALL RESISTORS ARE IN OHMS 1/8WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES IN PC BOARD ARE THE PRINTING SIDE OF THE PARTS. EX) PRINTING SIDE.
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

TYPE	UNIT NAME	*PARTS NO. C805, C806, C841, C842, C843, C845	C810	C871 C872
MD	NAAF-5680-1A	NO	020C	NO
MP MPA MW MPT	NAAF-5680-1B	YES	080D	YES

SCHEMATIC DIAGRAM PART-3